APPENDIX D – PEBBLE COUNT ANALYSIS
Stream Condition Inventory
Sediment Data Analysis
12/8/03

Background:

The Feather River Coordinated Resource Management (FRCRM) group, under a variety of funding programs, has been conducting watershed trend monitoring since 1999. This monitoring has utilized a variety of metrics at multiple spatial and temporal scales. The purpose of this monitoring is to ascertain change (trends) in watershed function. Utilization of multiple metrics over a range of time and space scales allows for analyses that incorporate both qualitative and quantitative data and observations. The following is a draft analysis of quantified sediment data buttressed with qualitative observation of sediment related inputs (discharge and sediment supply) at the watershed (spatial) scale over the previous decade (temporal) scale.

Flow Regime/Sediment Input Discussion:

The Feather River watershed has experienced two (2) distinct climatic regimes over the last decade. Water year (WY) 1992-3 was the first year of a six-year period (WY92-WY98) of much above normal precipitation. WY93-4 was the only dry year in the period. This period was characterized by frequent moderate to large flood events culminating in the 1997 flood of record.
WY1999-0 ushered in a four-year period (WY99-0 to present) of below normal precipitation with no flood* events. WY 2002-3 was the only year with normal precipitation, largely due to a very wet spring, which maintained an extended period of elevated in-channel flows.
Significant Flood Dates: Jan. '93, Jan. '95, Mar. '95, May '95, Jan. '97

Table #1- Total Annual Precipitation (inches of water); (Wilcox data, 1995-03, Genesee, Ca.).

WY 95-96	WY 96-97	WY 97-98	WY 98-99	WY 99-00	WY 00-01	WY 01-02	WY 02-03	WY Ave.
54.55	58.90	60.70	47.80	43.65	23.60	33.60	49.60	46.55

Typically, large floods deliver significant sediment and debris inputs to the channel system throughout the watershed. Depending on magnitude and frequency these inputs result in a dynamic channel response of interrelated processes. The 1997 flood of record (~48,000 cfs./Indian Cr. @ Crescent Mills) affected each subwatershed differently. However, the net result was locally catastrophic delivery of sediments and debris from tributaries to the mainstem channels (Indian Creek, Spanish Creek, NFFR and MFFR). The more frequent, longer duration low flows begin a process of re-working the deposited materials concurrent with ongoing vegetation recovery.

*Flood as used in this context means no flows exceeding a 2-year event at the watershed scale.

Sampling Methodologies:

The FRCRM has used two (2) distinct methodologies to sample sediment composition. The first is bulk sampling of bar and bed materials using a sieve analysis to derive compositional attributes of fully mobilized sediments by size/weight. The second is to conduct pebble counts to derive compositional attributes of channel bed surfaces by size (median diameter). The initial sampling conducted in 1999 collected bulk samples, still being analyzed. The 2001 and 2003 sampling consisted of pebble counts.

The above differentiation is done for two (2) reasons. Bulk sampling is very expensive. While the data derived is detailed and accurate, subsequent sampling is only useful if the intervening flow regime has resulted in significant mobilization of the bed and substrate. Significant bed mobilizing flows have not occurred since 1998.

Pebble counts are inherently skewed toward the larger particles that resist movement at flows less than bankfull. However, as the watershed responds to, and processes, the inputs from the preceding wet period trends in the distribution of sediments on the surface can be discerned in the ongoing below normal flow regime.

Analysis Methodology:

Sediment analyses typically use metrics that represent median particle sizes by size class and annotated as D_* . D_* expresses the percent of particles in the sample that are less than D value (i.e. D_{35} expresses that 35% of the particles are finer than this size or size class. Stream Condition Inventory protocols have typically looked at D_{50} value as the analysis metric. This value is also used frequently in stream classification systems to characterize the physical bed surface (e.g. sand, gravel, cobble, etc.). While the D_{50} absolute value may change slightly (e.g. 39 mm to 48 mm) it is still a gravel bed channel. A D_{50} change that reflects a gross bed character change (e.g., from a gravel bed to sand bed channel) indicates a major perturbation in watershed condition. A change on this scale would likely be detected with other monitoring metrics.

When analyzing trend changes in watershed condition and its effects on water quality and biological processes other size thresholds are more sensitive indicators of condition change. This analysis explores the changes represented by three size thresholds: D_{35}, D_{50}, D_{84}. The D_{35} values characterize the response of the finer sediments that can be mobilized at most elevated flows. High percentages of fine sediments have been linked to watershed disturbance as a source and as a biological stressor in the aquatic environment.

The D_{84} threshold has been determined to be the portion of the bed mobilized most frequently at the bankfull discharge. These are the materials that determine channel bed form. The frequency of mobilization also determines the optimum habitat opportunities of a particular channel reach (i.e., macro-invertebrates, spawning, etc.).

Analysis Summary:

The purpose of this analysis is to tentatively posit which stream reaches are improving, static or declining based on sediment size. Alternatively, these data should still be considered as baseline conditions. The data sets are limited (2 samples) over a three-year period 2000-2003. The criteria used to evaluate the data sets compared three size thresholds (D_{35}, D_{50}, D_{84}) between the 2001 and 2003 samples. The underlying inferences are: 1.) a coarsening of fine sediments indicate a reduction in supply/deposition of damaging silts and sands; 2.) a static trend in the median sizes indicates no major perturbations in the watershed; and, 3.) a fining of the coarser sediments would indicate effective re-working of bed pavements deposited by the previous floods, which provides cleansing and aeration for aquatic organisms.

The composite trend that would indicate improvement would be a coarsening of the fine sediments, static or coarsening of median size and a fining of the larger particles. If the data showed improvement in 2 of 3 threshold values, the channel was improving. If there was improvement in only one threshold and no significant decline in the others the trend was considered static. If there was

decline in 2 or more thresholds the reach is in decline. The following Table #2 gives the threshold values for each reach and the trend determination.

Table #2- D_* Values for Analysis (in millimeters)

Reach Name	Data Year- 2001			Data Year- 2003			Trend
	D_{35}	D_{50}	D_{84}	D_{35}	D_{50}	D_{84}	
Last Chance below Murdoch	8.3	18	38	15.5	20	35	+
Indian Cr. @ Flournoy Br.	24	30	53	21	27	45	=
Indian Cr. below T-ville	22.5	35	69	31	36	60	+
Lights Creek	15	18	33	14.5	16	26	=
Wolf Creek	9.8	15.5	32	16.5	18.5	33	+
Indian Cr. above Spanish Cr.**	42	102	330	62	104	270	+
Rock Creek @ Spanish Cr.	19	22	79	27	37	100	+
Spanish Cr. above Greenhorn	7.8	11	23	14	17	28	+
Greenhorn Cr. above Spanish	17	21.5	37	15	18	29.5	-
Spanish Cr. above Indian	20	29.5	73	18.5	28.5	73	=
EBNFFR above NFFR**	74	102	110	53	95	105	+
NFFR above Lk. Almanor**	14	60	220	16	110	340	-
Butt Creek	18	29	75	22	27	52	+
NFFR above EBNFFR	41	55	93	19.5	30	130	-
MFFR @ Beckwourth	3.4	4.9	14	13	15	22	+
Sulphur Creek	19.5	31	73	25	39	92	+
Jamison Creek @ MFFR	21.5	34	75	23	32	75	=
MFFR @ Nelson Creek**	70	92	160	55	73	150	+
	Data Year- 1995			Data Year- 2003			
	D_{35}	D_{50}	D_{84}	D_{35}	D_{50}	D_{84}	
Red Clover below Chase Br.	4.7	15	74	17	22.5	560	+
Hungry Creek	24	46	165	15	19.5	46	-

The comparison indicates that 12 reaches are in an improving trend, 4 reaches are static and four reaches are showing decline (Greenhorn abv Spanish, NFFR abv Almanor, NFFR abv EBNFFR, and Hungry Creek). It must be noted that some of the improvements may be attributable to several low flow years followed by a sustained spring flushing flow just before 2003 sampling.

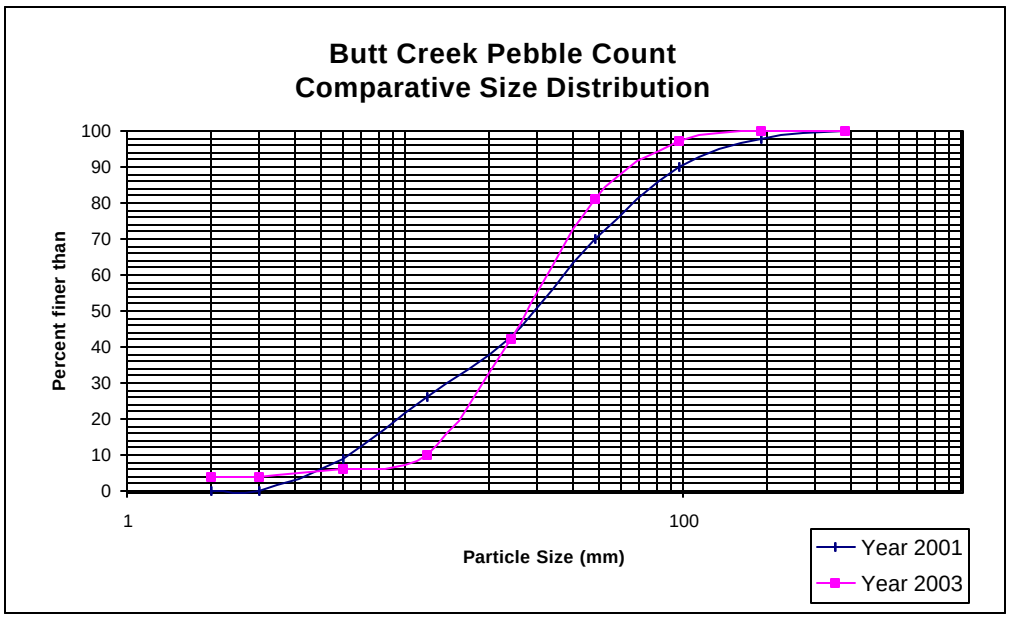
BUTT CREEK

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	0	4	0	4
2-4mm	3	0	4	0	0
4-8mm	6	9	6	9	2
8-16mm	12	26	10	17	4
16-32mm	24	43	42	17	32
32-64mm	48	70	81	27	39
64-128mm	96	90	97	20	16
128-256mm	192	98	100	8	3
256-512mm	384	100	100	2	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	29.5
2003	27

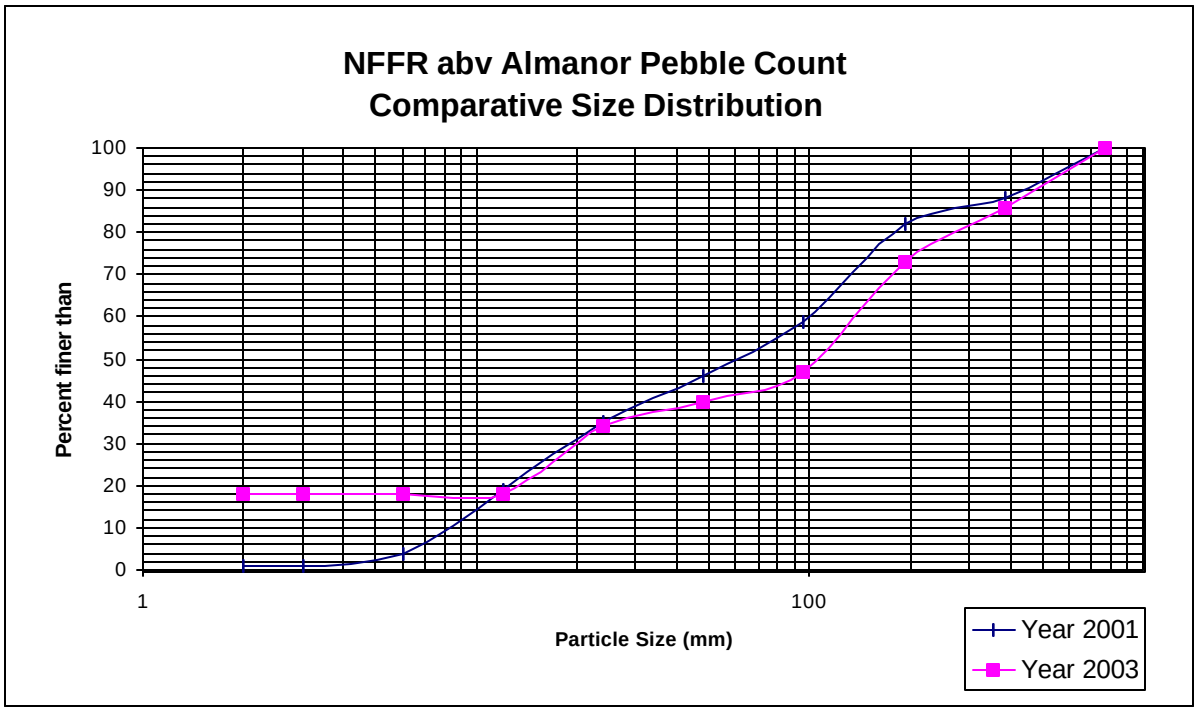
NFFR abv Almanor

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	1	18	1	18
2-4mm	3	1	18	0	0
4-8mm	6	4	18	3	0
8-16mm	12	19	18	15	0
16-32mm	24	35	34	16	16
32-64mm	48	46	40	11	6
64-128mm	96	59	47	13	7
128-256mm	192	82	73	23	26
256-512mm	384	88	86	6	13
512-1024mm	768	100	100	12	14
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	50
2003	103

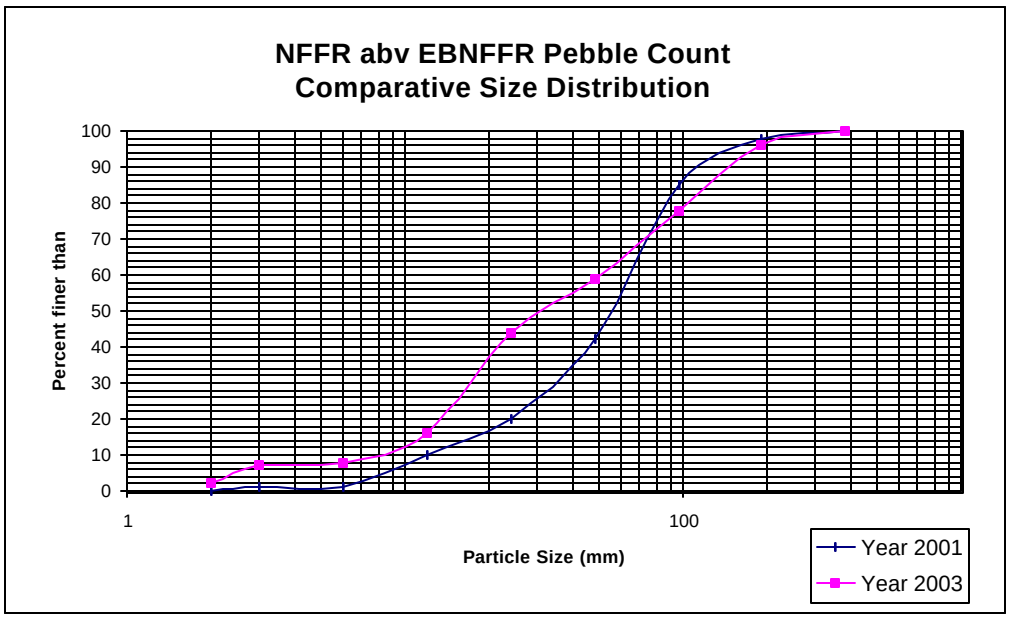
NFFR abv EBNFFR

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	0	2	0	2
2-4mm	3	1	7	1	5
4-8mm	6	1	8	0	1
8-16mm	12	10	16	9	8
16-32mm	24	20	44	10	28
32-64mm	48	42	59	22	15
64-128mm	96	85	78	43	19
128-256mm	192	98	96	13	18
256-512mm	384	100	100	2	4
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	55
2003	30

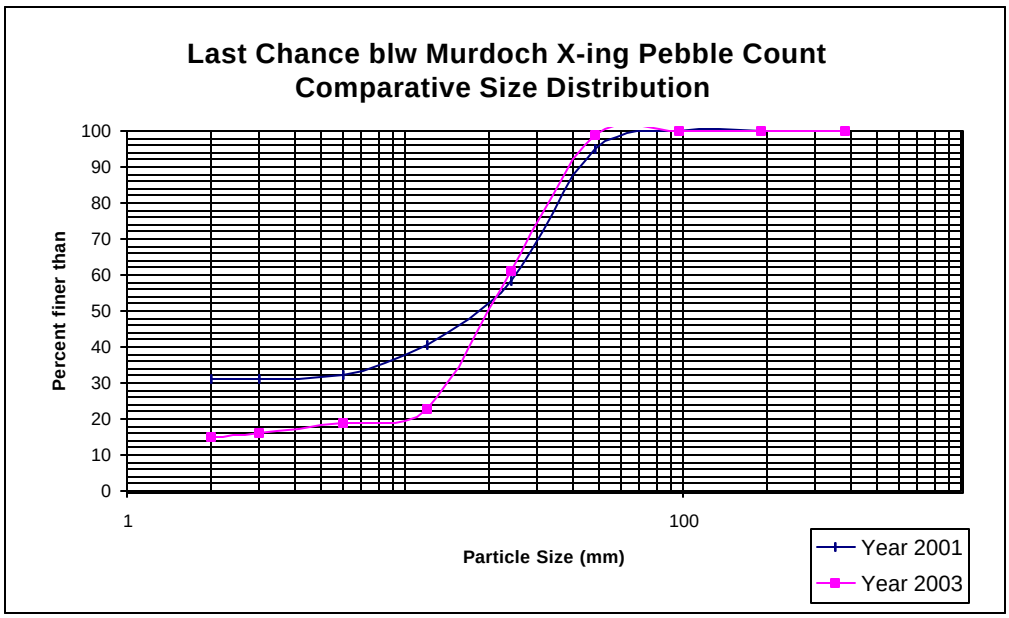
Last Chance blw Murdoch X-ing

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	31	15	32	15
2-4mm	3	31	16	0	1
4-8mm	6	32	19	1	3
8-16mm	12	41	23	9	4
16-32mm	24	58	61	18	38
32-64mm	48	95	99	38	38
64-128mm	96	100	100	5	1
128-256mm	192	100	100	0	0
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				103	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	18
2003	21

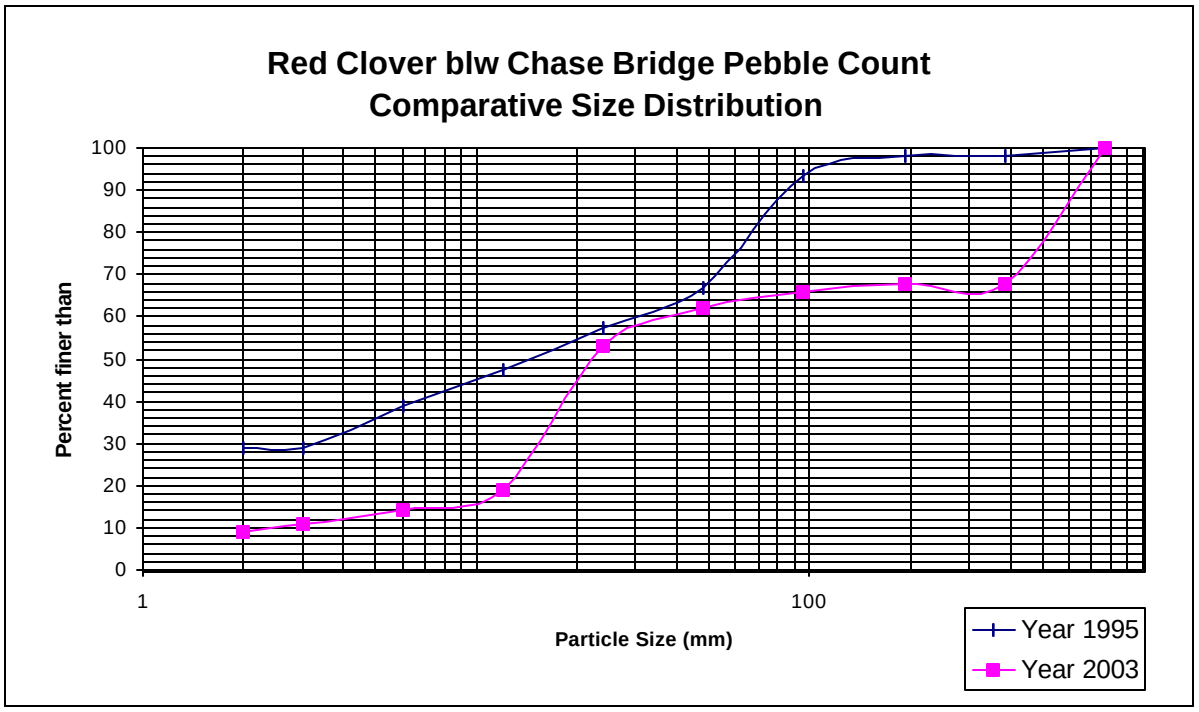
Red Clover blw Chase Bridge

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 1995	PERCENT, 2003	SIZE CT., 1995	SIZE CT., 2003
<2mm	2	29	9	30	9
2-4mm	3	29	11	0	2
4-8mm	6	39	14	10	3
8-16mm	12	48	19	9	5
16-32mm	24	57	53	10	34
32-64mm	48	67	62	10	9
64-128mm	96	93	66	27	4
128-256mm	192	98	68	5	2
256-512mm	384	98	68	0	0
512-1024mm	768	100	100	2	32
				103	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
1995	15
2001	23

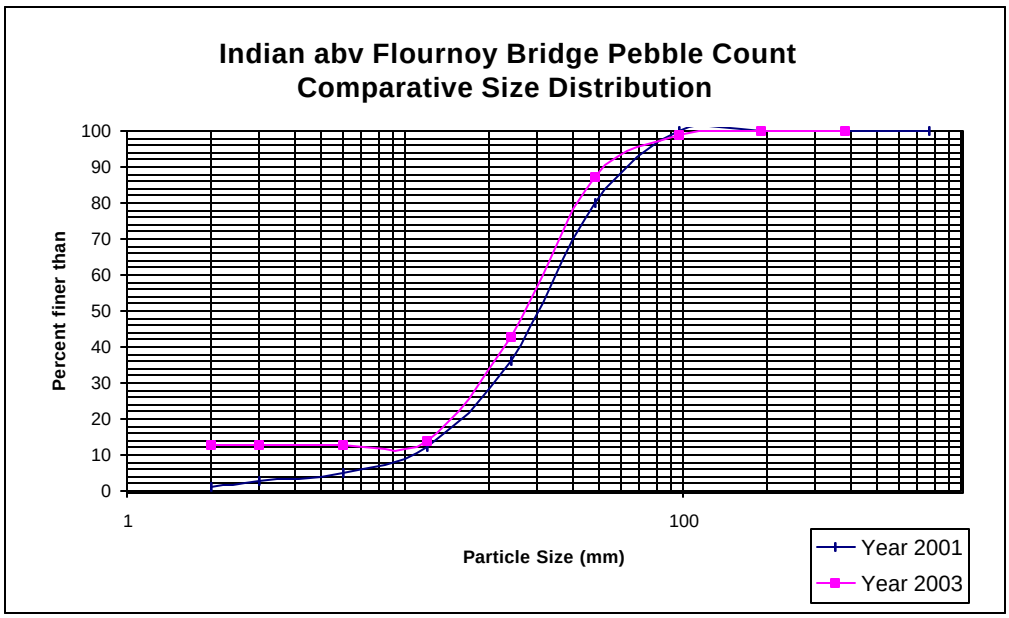
Indian Creek abv Flournoy Bridge

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	1	13	1	13
2-4mm	3	3	13	2	0
4-8mm	6	5	13	2	0
8-16mm	12	12	14	7	1
16-32mm	24	36	43	24	29
32-64mm	48	80	87	44	44
64-128mm	96	100	99	20	12
128-256mm	192	100	100	0	1
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	30
2003	27

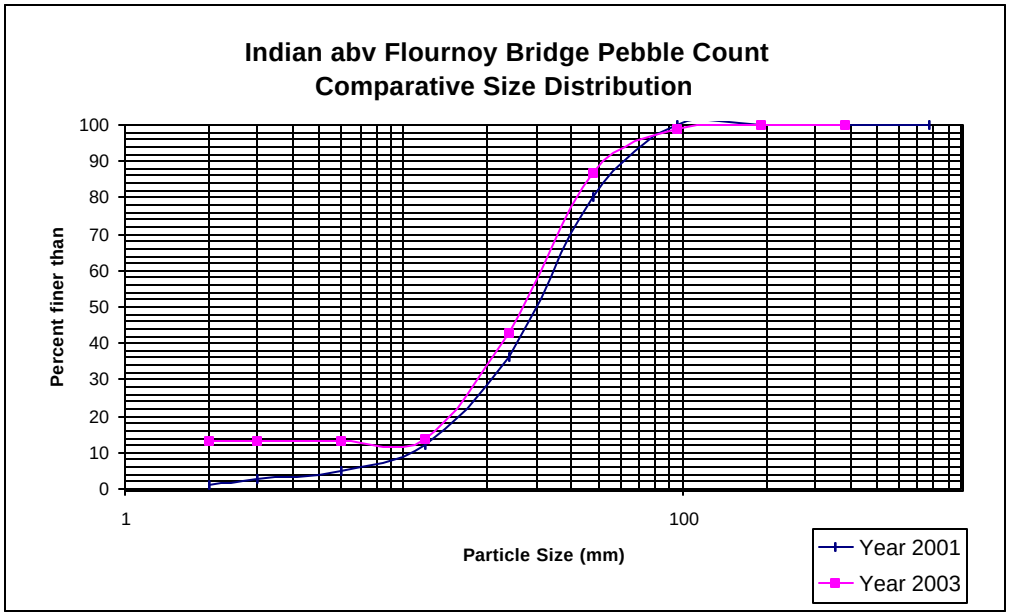
Indian Creek abv Flournoy Bridge

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	1	13	1	13
2-4mm	3	3	13	2	0
4-8mm	6	5	13	2	0
8-16mm	12	12	14	7	1
16-32mm	24	36	43	24	29
32-64mm	48	80	87	44	44
64-128mm	96	100	99	20	12
128-256mm	192	100	100	0	1
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	30
2003	27

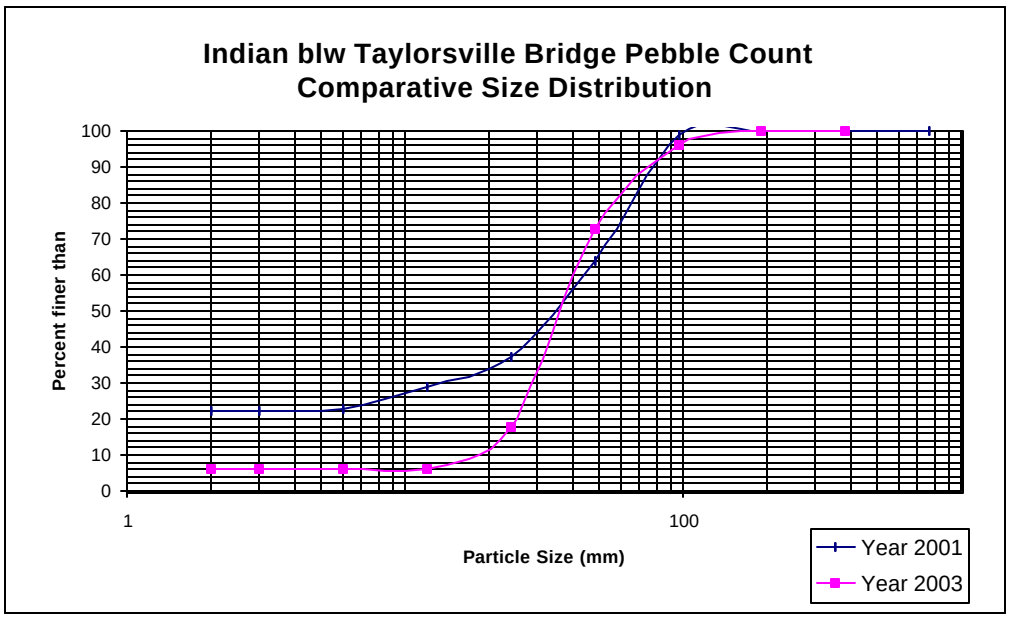
Indian Creek blw Taylorsville Bridge

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	22	6	22	6
2-4mm	3	22	6	0	0
4-8mm	6	23	6	1	0
8-16mm	12	29	6	6	0
16-32mm	24	37	18	8	12
32-64mm	48	64	73	27	55
64-128mm	96	99	96	35	23
128-256mm	192	100	100	1	4
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	35
2003	36

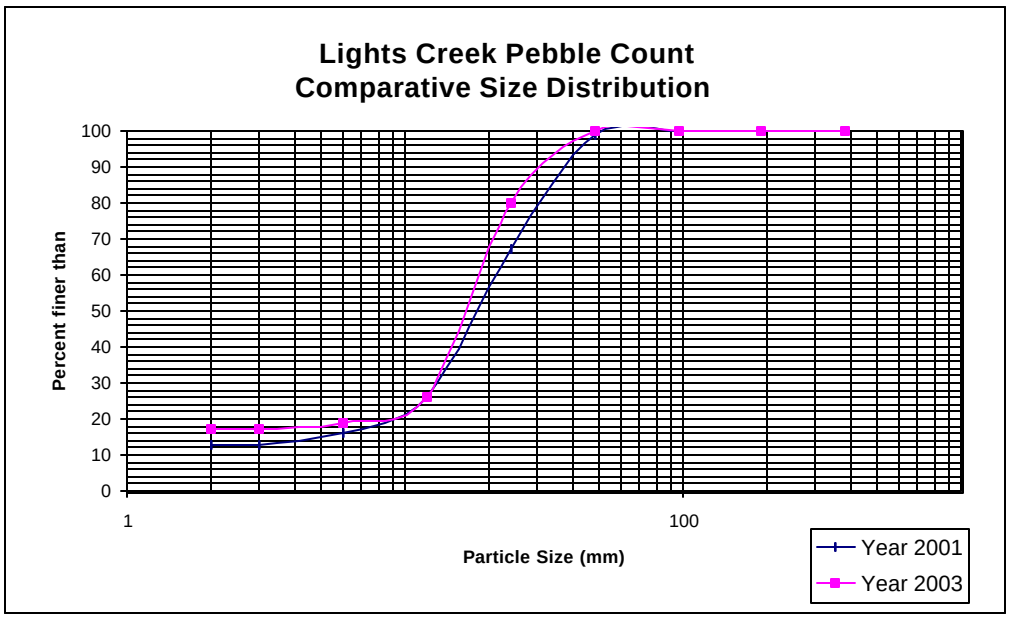
Lights Creek

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	13	17	13	17
2-4mm	3	13	17	0	0
4-8mm	6	16	19	3	2
8-16mm	12	26	26	10	7
16-32mm	24	67	80	41	54
32-64mm	48	99	100	32	20
64-128mm	96	100	100	1	0
128-256mm	192	100	100	0	0
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	18
2003	16.5

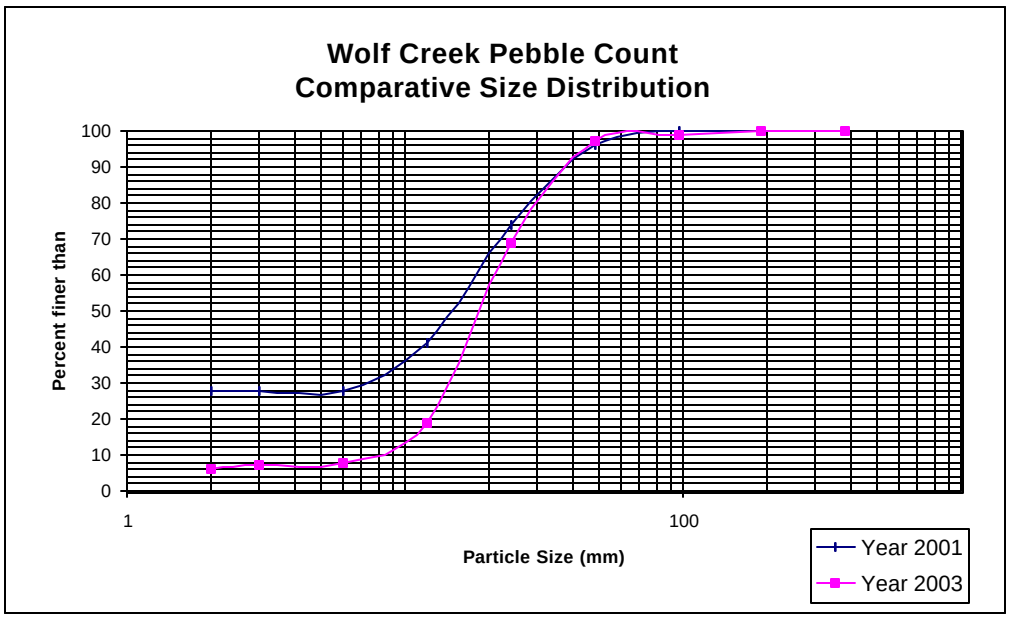
WOLF CREEK

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	28	6	28	6
2-4mm	3	28	7	0	1
4-8mm	6	28	8	0	1
8-16mm	12	41	19	13	11
16-32mm	24	74	69	33	50
32-64mm	48	96	97	22	28
64-128mm	96	100	99	4	2
128-256mm	192	100	100	0	1
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	15.5
2003	18.5

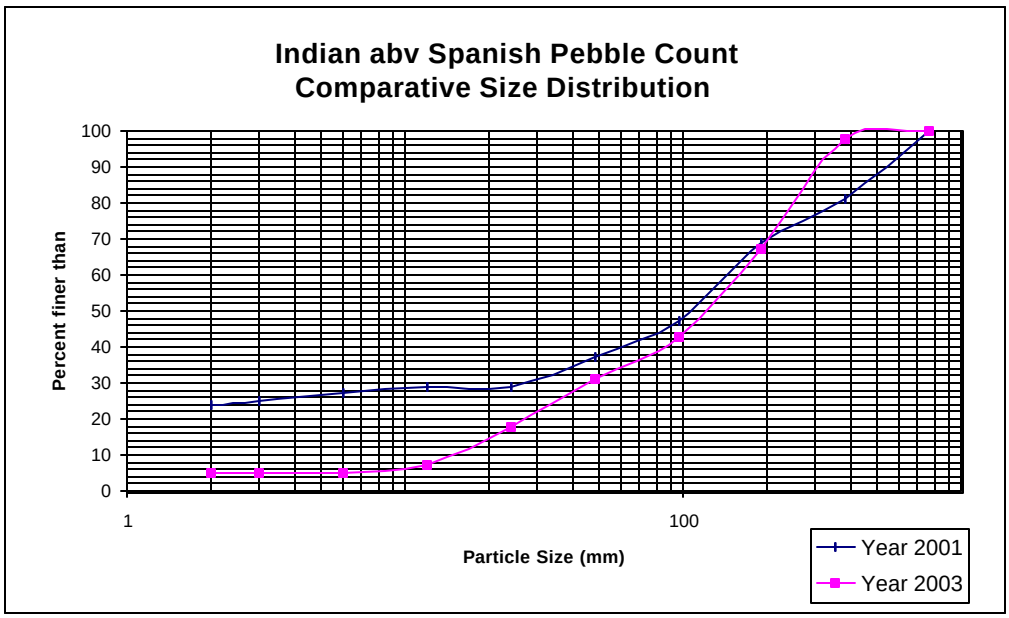
Indian Creek abv Spanish

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	24	5	24	5
2-4mm	3	25	5	1	0
4-8mm	6	27	5	2	0
8-16mm	12	29	7	2	2
16-32mm	24	29	18	0	11
32-64mm	48	37	31	8	13
64-128mm	96	47	43	10	12
128-256mm	192	69	67	22	24
256-512mm	384	81	98	12	31
512-1024mm	768	100	100	19	2
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	102
2003	104

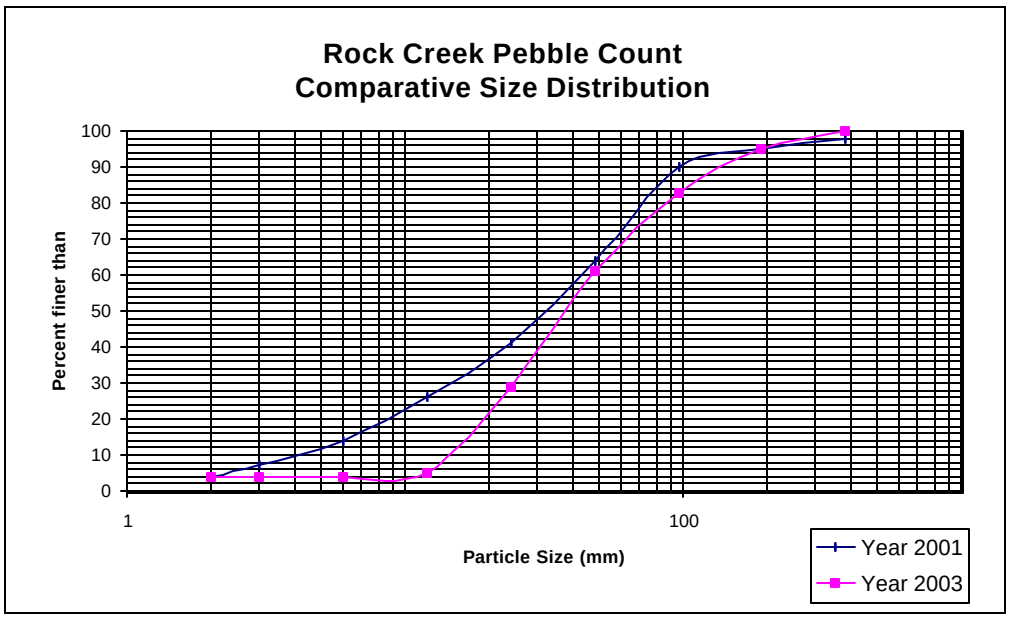
ROCK CREEK

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	4	4	4	4
2-4mm	3	7	4	3	0
4-8mm	6	14	4	7	0
8-16mm	12	26	5	12	1
16-32mm	24	41	29	15	24
32-64mm	48	64	61	23	32
64-128mm	96	90	83	26	22
128-256mm	192	95	95	5	12
256-512mm	384	98	100	3	5
512-1024mm	768	100	100	2	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	33
2003	38

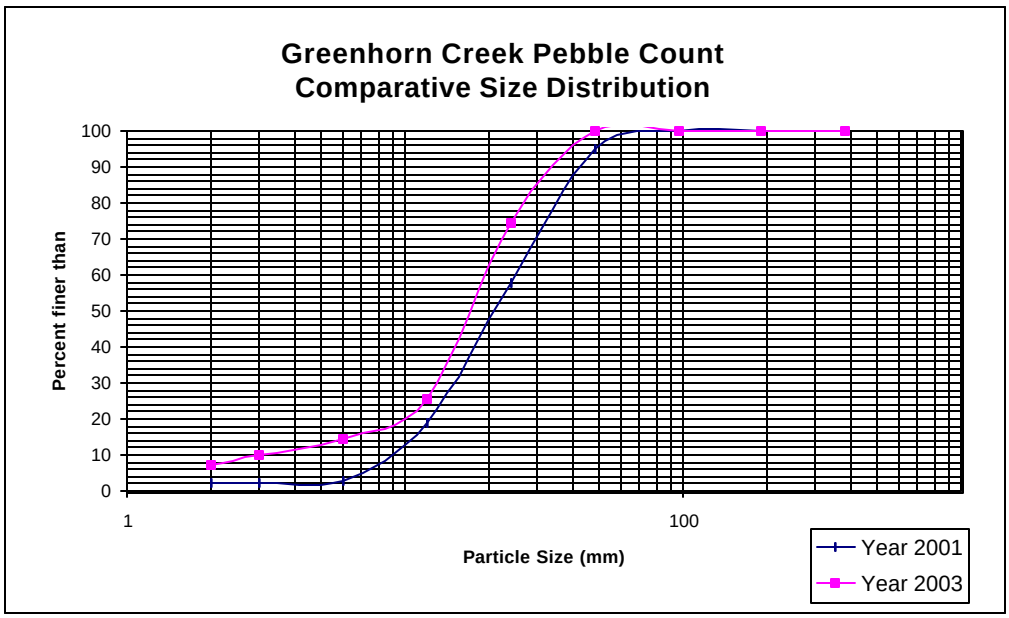
GREENHORN CREEK

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	2	7	2	7
2-4mm	3	2	10	0	3
4-8mm	6	3	14	1	4
8-16mm	12	19	26	16	11
16-32mm	24	58	74	39	48
32-64mm	48	95	100	37	25
64-128mm	96	100	100	5	0
128-256mm	192	100	100	0	0
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	98

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	17.5
2003	22

SPANISH abv GREENHORN

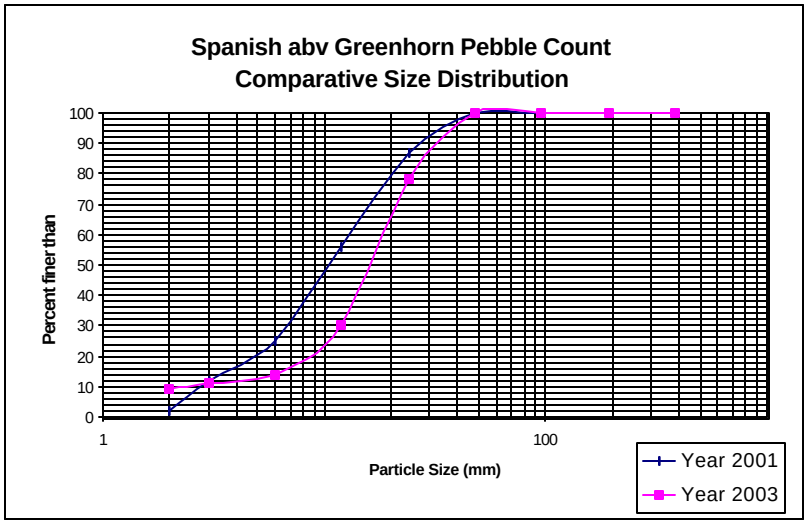
Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	2	9	2	9
2-4mm	3	12	11	10	2
4-8mm	6	25	14	13	3
8-16mm	12	56	30	31	16
16-32mm	24	87	78	31	48
32-64mm	48	100	100	13	22
64-128mm	96	100	100	0	0
128-256mm	192	100	100	0	0
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

	Cobbles		Boulders	Bedrock
64 to 128	128 to 256	>256		
Class 7	Class 8	Class 9	Class 10	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	0	0	0	

**NOTE: The above values are the median size for the sampled size classess.

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	11
2003	16.5

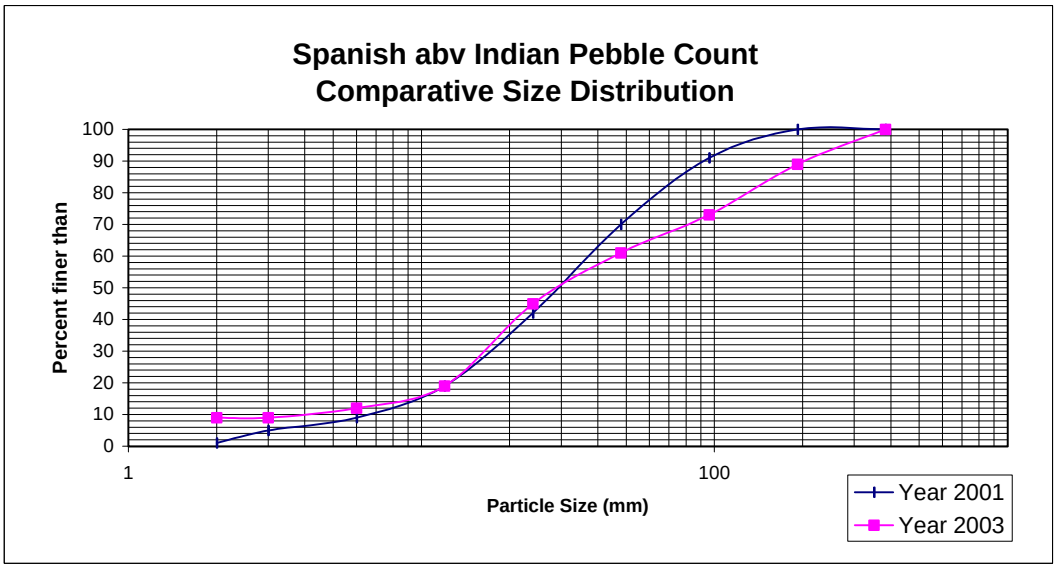
SPANISH abv INDIAN

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	1	9	1	9
2-4mm	3	5	9	4	0
4-8mm	6	9	12	4	3
8-16mm	12	19	19	10	7
16-32mm	24	42	45	23	26
32-64mm	48	70	61	28	16
64-128mm	96	91	73	21	12
128-256mm	192	100	89	9	16
256-512mm	384	100	100	0	11
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	29
2003	28.5

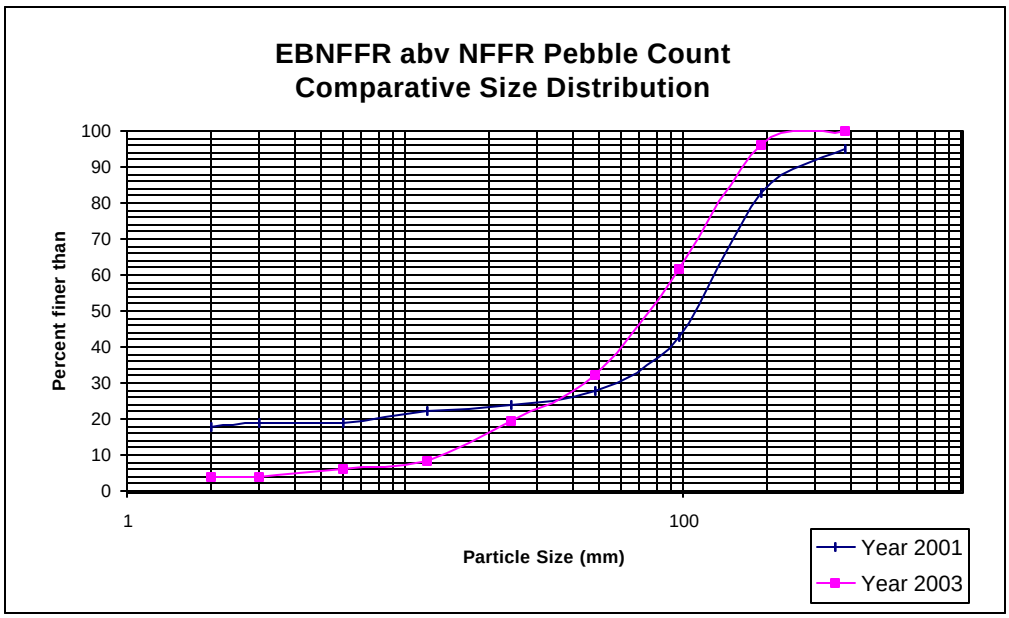
EBNFFR abv NFFR

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	18	4	18	4
2-4mm	3	19	4	1	0
4-8mm	6	19	6	0	2
8-16mm	12	22	8	3	2
16-32mm	24	24	19	2	11
32-64mm	48	28	32	4	13
64-128mm	96	43	62	15	29
128-256mm	192	83	96	40	34
256-512mm	384	95	100	12	4
512-1024mm	768	100	100	5	0
				100	99

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	102
2003	74

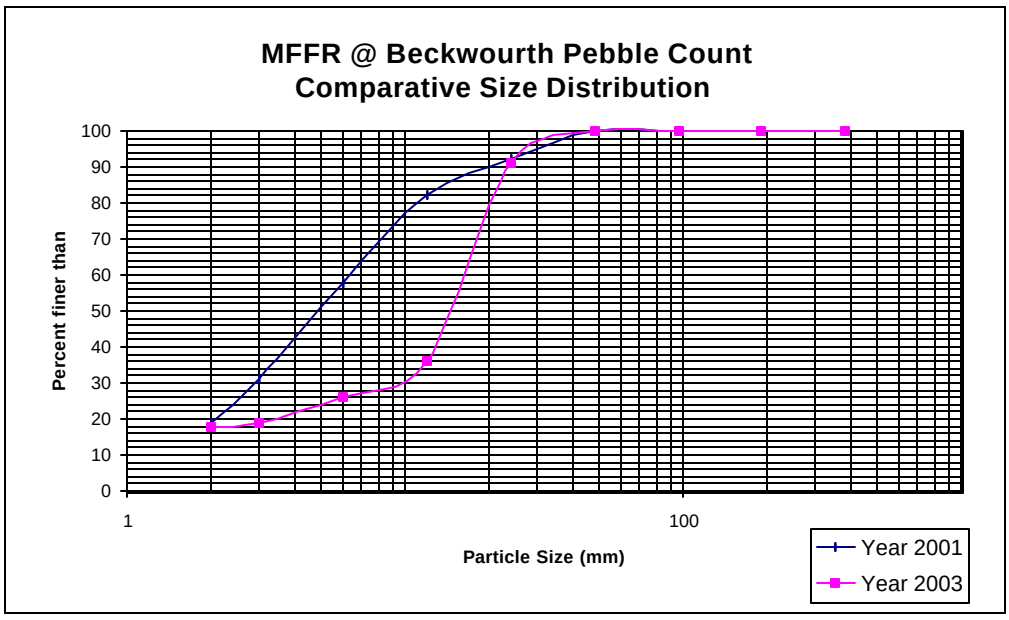
MFFR @ Beckwourth

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	19	18	19	18
2-4mm	3	31	19	12	1
4-8mm	6	58	26	27	7
8-16mm	12	82	36	24	10
16-32mm	24	92	91	10	55
32-64mm	48	100	100	8	9
64-128mm	96	100	100	0	0
128-256mm	192	100	100	0	0
256-512mm	384	100	100	0	0
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	5
2003	15

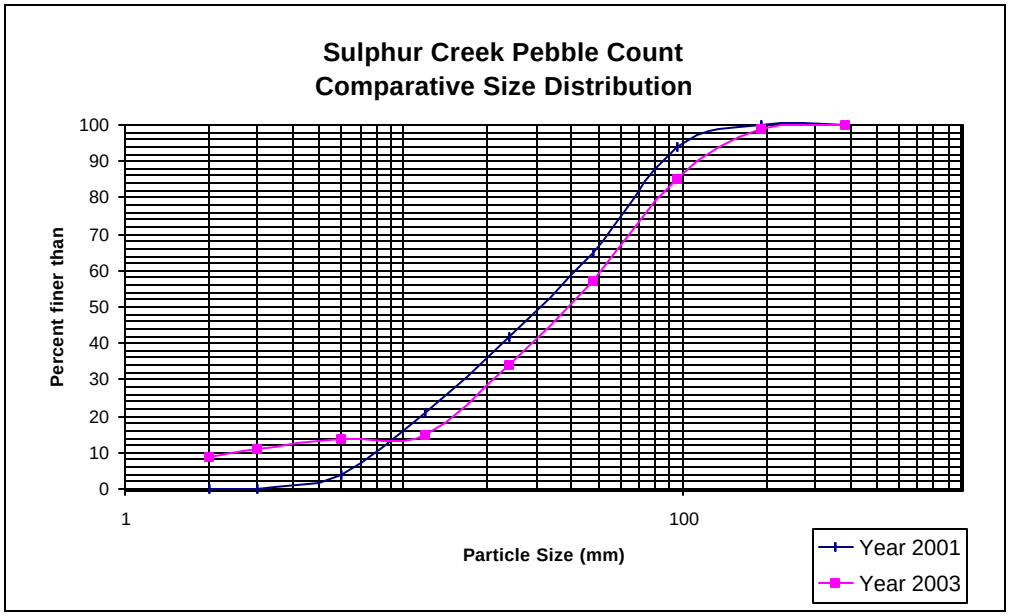
Sulphur Creek

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	0	9	0	9
2-4mm	3	0	11	0	2
4-8mm	6	4	14	4	3
8-16mm	12	21	15	17	1
16-32mm	24	42	34	21	19
32-64mm	48	65	57	23	23
64-128mm	96	94	85	29	28
128-256mm	192	100	99	6	14
256-512mm	384	100	100	0	1
512-1024mm	768	100	100	0	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	30
2003	40

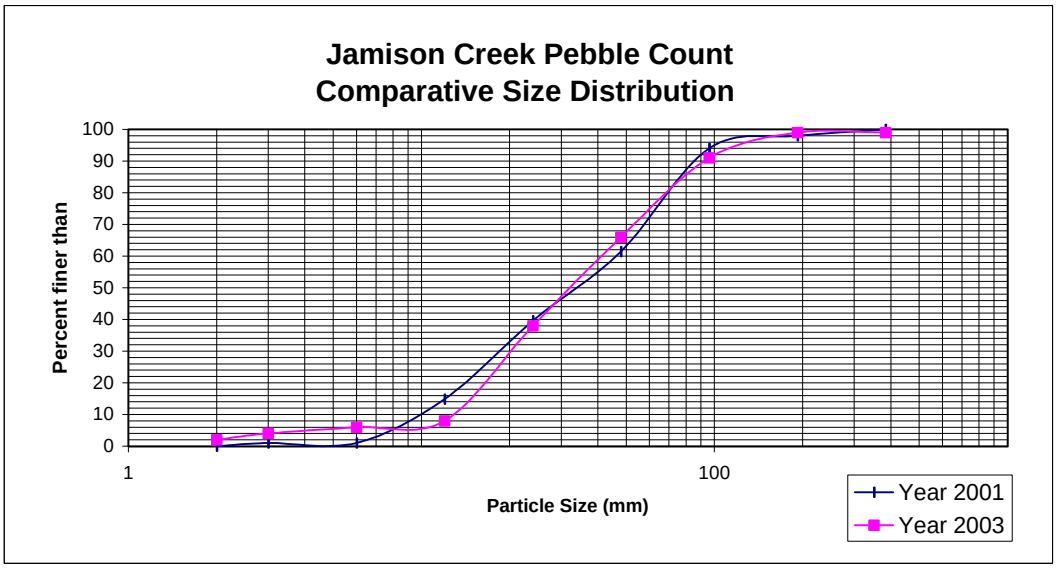
JAMISON CREEK

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	0	2	0	2
2-4mm	3	1	4	1	2
4-8mm	6	1	6	0	2
8-16mm	12	15	8	14	2
16-32mm	24	40	38	25	30
32-64mm	48	61	66	22	28
64-128mm	96	94	91	33	25
128-256mm	192	98	99	4	8
256-512mm	384	100	99	2	0
512-1024mm	768	100	100	0	1
				101	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	34
2003	32

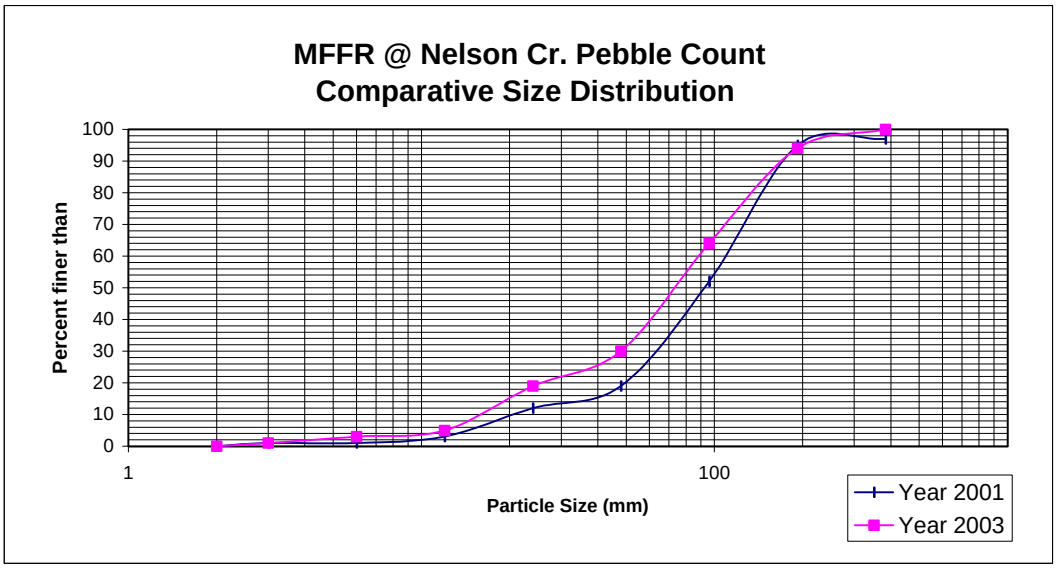
MFFR @ Nelson Cr.

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 2001	PERCENT, 2003	SIZE CT., 2001	SIZE CT., 2003
<2mm	2	0	0	0	0
2-4mm	3	1	1	1	1
4-8mm	6	1	3	0	2
8-16mm	12	3	5	2	2
16-32mm	24	12	19	9	14
32-64mm	48	19	30	7	11
64-128mm	96	52	64	33	34
128-256mm	192	95	94	43	30
256-512mm	384	97	100	2	6
512-1024mm	768	100	100	3	0
				100	100

****NOTE: The above values are the median size for the sampled size classess.**

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
2001	93
2003	74

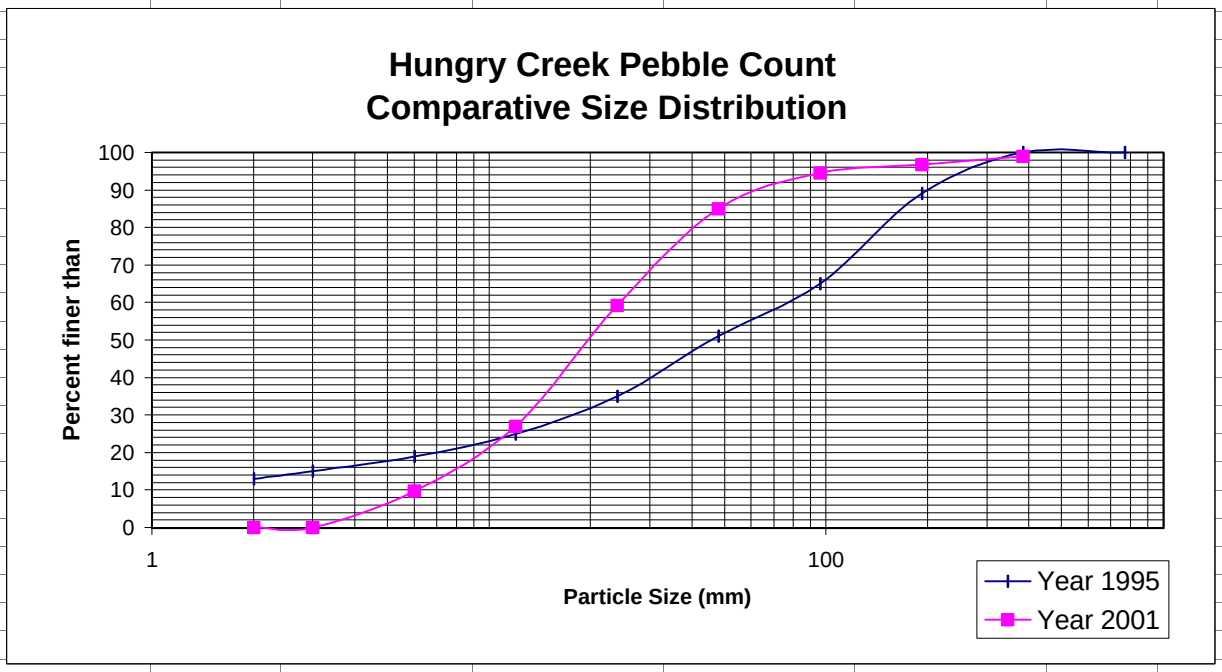
Hungry Creek

Pebble Count Comparative Particle Size Distributions-- Yr 01-03

SIZE CLASSES	**SIZE(mm)	PERCENT, 1995	PERCENT, 2001	SIZE CT., 1995	SIZE CT., 2001
<2mm	2	13	0	13	0
2-4mm	3	15	0	2	0
4-8mm	6	19	10	4	9
8-16mm	12	25	27	6	16
16-32mm	24	35	59	10	30
32-64mm	48	51	85	16	24
64-128mm	96	65	95	14	9
128-256mm	192	89	97	24	2
256-512mm	384	100	99	11	2
512-1024mm	768	100	100	0	1
				100	93

**NOTE: The above values are the median size for the sampled size classess.

All samples were derived from riffles closest to the cross-sections.



YEAR	D_{50} (mm)
1995	46
2001	19.5